TREND STUDY 17-48-95

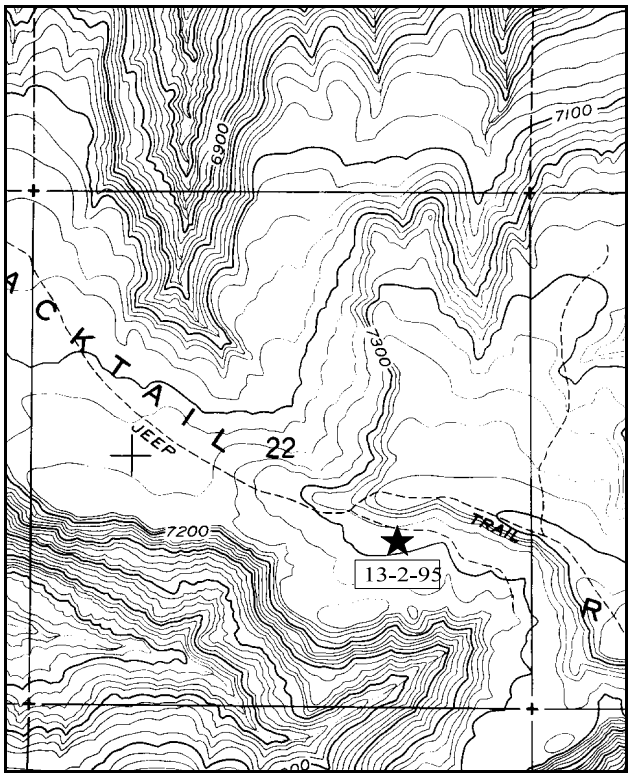
Study site name: Blacktail Ridge . Range type: Sagebrush-Grass .

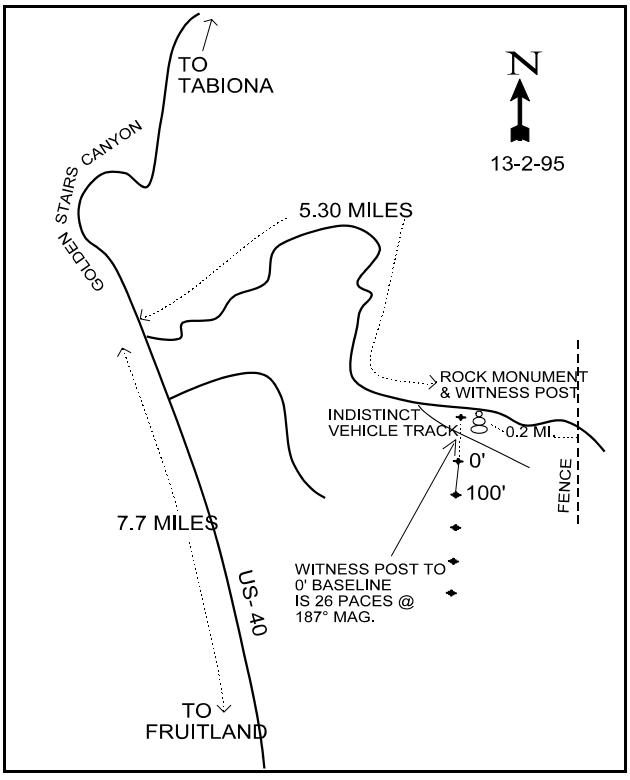
Compass bearing: frequency baseline 196 degrees.

First frame placement on frequency belts 5 feet. Frequency line placement; line 1 (6 & 91ft), line 2 (32ft), line 3 (53ft), line 4 (71ft).

LOCATION DESCRIPTION

From Highway U.S. 40. take Highway U-208 towards Tabiona, at which point there will be a steep downgrade sign for Golden Stairs Canyon. Just before Golden Stairs Canyon, turn right through a gate. Proceed along this road for 5.3 miles, up a steep rocky 4 WD road to the top of the bench and on to a sagebrush opening. If you go too far, there is a fenceline .2 miles past the study area. The study area is marked by a rock cairn along the south side of the road. From the cairn, the 0-foot baseline stake is 36 paces away at a bearing of 262 degrees.





Map Name: Tabiona

Diagrammatic Sketch

Township 2S , Range 7W ,Section 22 GPS COOR. 5-28-005E 12 44-60-582N

DISCUSSION

Trend Study No.13-2

This trend study is located on the winter range of Blacktail Ridge. The study site is within a small sagebrush-grass park surrounded by dense pinyon-juniper woodland. Deer use of the area is moderately heavy. There is no sign of livestock grazing on this portion of the Two-Bar East Unit of the Red Creek Wildlife Management Area in 1988 or 1995. Terrain is essentially flat and the elevation is 7,300 feet. The land is owned by the Utah Division of Wildlife Resources.

Soil is light-colored and rather sandy in texture. Rooting depth is variable and obviously restricted in some areas where black sagebrush occurs. Little to no rock and pavement cover occurs on the surface. Ground cover from vegetation (basal cover) and litter was moderately good at 71% in 1982 declining to 64% in 1988. Percent bare ground declined in 1988 due to a significant increase in cryptogamic cover (2% to 14%). Aerial vegetative cover was estimated at 35% in 1995 with litter declining slightly to 46%. Percent bare ground continued to decline and currently is estimated at almost 18%. Erosion does not currently appear to be a problem on the site due to the lack of significant slope. Some erosion is occurring on disturbed areas, such as vehicle tracks.

Key browse on this site consist of mountain big sagebrush intermixed with black sagebrush. Some hybridizing is occurring between these two species. Density of mature mountain big sagebrush has remained fairly constant at around 3,000 plants/acre since 1982. The large reduction in the number of mature plants noted in 1988 is the result of increased decadence from 6% in 1982 to 59% in 1988. It also appears that they misidentified many of the mature plants as young plants and without any sign of reproduction (seedlings) in 1982 or 1988 this would have to be the only logical explanation for this disproportionate statistic for mature plants in 1988. Currently, 31% of the stand is classified as decadent. Dead plants number only 940 plants/acre or 1 dead plant for every 6 live plants. It appears that many of the decadent plants sampled in 1988 recovered by 1995. Data indicated that 57% of the mountain big sagebrush were heavily hedged in 1988. Vigor was also reduced on 20% of the population. During the 1995 reading the proportion of heavily hedged sagebrush declined to only 12% with 18% displaying poor vigor. Some of the decadence in 1995 could have been the result of winter injury which was reported in field notes. Currently recruitment is low with only 7% of the population consisting of young plants and no seedlings were found.

Black sagebrush occurs in patches where soil depth is somewhat restricted. Percent decadency trends were similar to those observed in mountain big sagebrush. The 1988 reading found dramatically increased decadence (0% to 46%) and poor vigor on 13% of the population. However, utilization was light indicating the possibility of increased decadence caused by prolonged drought coupled with winter injury. Percent decadence has now (1995) gone down to only 3% with mostly light use.

The herbaceous understory is well developed and accounts for nearly one half of the total vegetative cover. Eight perennial grass species were encountered in 1995 with needle-and-thread, mutton grass, and Sandberg bluegrass providing 86% of the grass cover. Forbs are fairly diverse with 16 perennial species encountered in 1995. However, none of these species are abundant.

1982 APPARENT TREND ASSESSMENT

Although the soil is highly erodible, the level terrain limits soil loss. Nonetheless, there is 28% exposed ground which, if on a slope, would readily erode. Current trend is stable. Vegetative composition and trend appear stable. There is little evidence of any profound vegetative change. Mountain big sagebrush may slowly be increasing, with black sagebrush slowing decreasing in numbers. Future readings of the study should provide a more clear picture.

1988 TREND ASSESSMENT

Trend for soil is up with an increase in basal vegetative cover from 6% to 16%. Litter cover declined but cryptogamic cover was more prevalent, increasing from 2% to 14%. Trend for the key browse species, mountain big sagebrush, is down. Big game heavily utilized the big sagebrush this year with 56% of the plants classified as all available and heavily hedged. Young plants now make up 28% of the population (refer to introductory discussion), while the majority of the mature sagebrush have shifted to a more decadent population. Decadence has increased from 7% to 58% of the population. This is clearly supported by photographic comparisons, which show more decadent and severely clubbed sagebrush. Currently, vigor is poor. Sagebrush cover is still moderately high at 22%, but declining. Grass frequency is high, and has increased 39% since 1982. All but one of the grass species increased in quadrat frequency since 1982. Species composition is similar between years, with needle-and-thread the dominant species.

TREND ASSESSMENT
soil - up
browse - down with dramatically increased decadence and very heavy use
herbaceous understory - up

1995 TREND ASSESSMENT

Soil trend is stable. Litter cover continued to decline, but percent bare ground declined from 22% to 18%. Cryptogamic cover also declined significantly. Trend for the key browse species, mountain big sagebrush, has improved. Percent decadency has declined from 59% to 31% and the proportion of shrubs heavily utilized has declined from 57% to 12%. However, vigor is poor on 52% of the decadent sagebrush indicating a possible further die off of decadent individuals which would further reduce the rate of decadency. If all of the individuals with poor vigor should die, the total population will be reduced but the surviving plants will be healthier with less intraspecific competition. No seedlings were encountered in 1995, yet 7% of the population consists of young plants. Trend for the herbaceous understory is down slightly with the sum of nested frequency for two of the three dominate grasses declining significantly. Nested frequency of perennial forbs remained at similar levels to those reported in 1988.

TREND ASSESSMENT
soil - stable
browse - slightly up with improving conditions for mountain big sagebrush
herbaceous understory - slightly down

VEGETATIVE TRENDS --
Herd unit 13, Study no: 2

Type	Species	Nested Frequency '88	Nested Frequency '95	Quadrat Frequency '82	Quadrat Frequency '88	Quadrat Frequency '95	Average Cover % '95
G	Agropyron dasystachyum	184	*132	46	65	53	.59
G	Bromus tectorum	-	25	-	-	11	.08
G	Carex spp.	106	*65	27	43	27	.21
Type	Species	Nested Frequency '88	Nested Frequency '95	Quadrat Frequency '82	Quadrat Frequency '88	Quadrat Frequency '95	Average Cover % '95
G	Elymus salina	-	*31	-	-	13	.26
G	Oryzopsis hymenoides	-	*3	3	-	1	.03

G	Poa fendleriana	116	*124	9	52	47	2.26
G	Poa secunda	192	*162	56	77	60	2.07
G	Sitanion hystrix	12	39	8	7	18	.33
G	Stipa comata	285	*192	58	95	71	5.15
Total for Grasses		895	773	207	339	301	11.00
F	Allium spp.	-	*3	-	-	1	.00
F	Antennaria rosea	-	*5	-	-	2	.03
F	Arabis spp.	6	*-	-	3	-	-
F	Astragalus convallarius	41	*26	18	20	14	.49
F	Astragalus mollissimus	4	4	3	2	2	.03
F	Castilleja spp.	-	*14	-	-	8	.26
F	Chaenactis douglasii	2	-	-	1	-	-
F	Chenopodium leptophyllum	-	38	-	-	15	.07
F	Comandra pallida	-	*6	-	-	2	.06
F	Cryptantha spp.	5	7	-	2	2	.06
F	Delphinium bicolor	-	*31	-	-	15	.07
F	Descurainia pinnata	-	1	-	-	1	.00
F	Draba spp.	-	107	-	-	39	.24
F	Erigeron eatonii	22	*-	-	12	-	-
F	Erigeron flagellaris	-	-	19	-	-	-
F	Erigeron spp.	-	-	4	-	-	-
F	Eriogonum spp.	6	*-	-	2	-	-
F	Fritillaria atropurpurea	-	2	-	-	2	.01
F	Ipomopsis aggregata	-	-	-	-	-	.00
F	Lappula occidentalis	-	35	-	-	17	.11
F	Lepidium spp.	-	11	-	-	6	.05
F	Lomatium spp.	-	*19	1	-	10	.05
F	Machaeranthera canescens	-	*5	4	-	2	.03
F	Orobanche spp.	-	5	-	-	2	.03
F	Penstemon spp.	-	*3	3	-	2	.01
F	Phlox hoodii	73	*24	17	29	14	.25
F	Phlox longifolia	3	*-	7	1	-	-
F	Polygonum douglasii	-	254	13	-	90	1.13

Type	Species	Nested Frequency '88	Nested Frequency '95	Quadrat Frequency '82	Quadrat Frequency '88	Quadrat Frequency '95	Average Cover % '95
F	Schoencrambe linifolia	28	*1	-	15	1	.00
F	Senecio multilobatus	5	*-	-	4	-	-
F	Sphaeralcea coccinea	17	*10	4	7	6	.22
F	Trifolium spp.	2	21	-	1	9	.17
Total for Forbs		214	632	93	99	262	3.46
B	Artemisia nova	12	12	-	7	6	1.67
B	Artemisia tridentata vaseyana	97	*82	45	43	40	13.38
B	Chrysothamnus nauseosus albicaulis	2	2	-	2	1	.15
B	Chrysothamnus viscidiflorus viscidiflorus	-	-	2	-	-	-
B	Echinocactus spp.	4	2	1	2	1	.00
B	Leptodactylon pungens	37	*33	-	21	15	1.27
B	Opuntia spp.	10	*10	1	4	6	.05
B	Pinus edulis	2	-	1	1	-	-
Total for Browse		164	141	50	80	69	16.54

* Indicates significant difference at % = 0.10 (annuals excluded)

BASIC COVER --
Herd unit 13, Study no: 2

Cover Type	Nested Frequency '95	Average Cover % '82	Average Cover % '88	Average Cover % '95
Vegetation	360	6.0	15.75	35.18
Rock	5	0	0	.01
Pavement	-	0	0	0
Litter	395	84.8	48.00	45.55
Cryptograms	179	1.3	14.00	3.48
Bare Ground	245	27.50	22.25	17.54

PELLET GROUP FREQUENCY --
Herd unit 13, Study no: 2

Type	Quadrat Frequency '95
Rabbit	2
Elk	12
Deer	35

BROWSE CHARACTERISTICS --
Herd unit 13, Study no: 2

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Artemisia nova																		
S	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	3	-	-	-	-	-	-	-	-	3	-	-	-	200			3
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	1	-	-	-	-	-	-	-	-	1	-	-	-	66			1
	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
M	82	9	1	-	-	-	-	-	-	-	10	-	-	-	666	13	22	10
	88	6	1	-	-	-	-	-	-	-	7	-	-	-	466	13	15	7
	95	21	8	-	-	-	-	-	-	-	29	-	-	-	580	10	22	29
D	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	6	1	-	-	-	-	-	-	-	5	-	1	1	466			7
	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
X	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	40			2
Total Plants/Acre (excluding Dead & Seedlings)													'82		666	Dec:		0%
													'88		998			46%
													'95		620			3%
Artemisia tridentata vaseyana																		
S	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	1	-	-	-	-	-	-	-	-	1	-	-	-	66			1
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	82	9	-	-	-	-	-	-	-	-	9	-	-	-	600			9
	88	20	4	1	-	-	-	-	-	-	21	-	3	1	1666			25
	95	15	2	-	-	-	-	-	-	-	17	-	-	-	340			17
M	82	39	6	-	-	-	-	-	-	-	43	2	-	-	3000	19	29	45
	88	1	2	8	-	-	-	-	-	-	11	-	-	-	733	16	14	11
	95	9	136	15	-	1	-	-	-	-	158	-	-	3	3220	18	30	161
D	82	3	1	-	-	-	-	-	-	-	3	1	-	-	266			4
	88	5	6	41	-	-	-	-	-	-	38	-	3	11	3466			52
	95	-	54	9	-	13	6	-	-	-	39	-	-	43	1640			82
X	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	940			47
Total Plants/Acre (excluding Dead & Seedlings)													'82		3866	Dec:		6%
													'88		5865			59%
													'95		5200			31%
Chrysothamnus nauseosus albicaulis																		
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20	15	23	1
Total Plants/Acre (excluding Dead & Seedlings)													'82		0	Dec:		-
													'88		0			-
													'95		20			-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Chrysothamnus viscidiflorus																		
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0	12	18	0
Total Plants/Acre (excluding Dead & Seedlings)														'82	0	Dec:		-
														'88	0			-
														'95	0			-
Echinocactus spp.																		
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	5	-	-	-	-	-	-	-	-	5	-	-	-	100	2	3	5
Total Plants/Acre (excluding Dead & Seedlings)														'82	0	Dec:		-
														'88	0			-
														'95	100			-
Leptodactylon pungens																		
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	4	-	-	-	-	-	-	-	-	4	-	-	-	266			4
	95	12	-	-	-	-	-	-	-	-	12	-	-	-	240			12
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	88	30	-	-	-	-	-	-	-	-	30	-	-	-	2000	5	4	30
	95	79	-	-	6	-	-	-	-	-	85	-	-	-	1700	6	10	85
Total Plants/Acre (excluding Dead & Seedlings)														'82	0	Dec:		-
														'88	2266			-
														'95	1940			-
Opuntia spp.																		
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	2	-	-	-	-	-	-	-	-	2	-	-	-	133			2
	95	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
M	82	2	-	-	-	-	-	-	-	-	2	-	-	-	133	1	6	2
	88	2	-	-	-	-	-	-	-	-	2	-	-	-	133	2	2	2
	95	3	-	-	-	-	-	-	-	-	3	-	-	-	60	3	6	3
D	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	1	-	-	-	-	-	-	-	-	1	-	-	-	66			1
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Total Plants/Acre (excluding Dead & Seedlings)														'82	133	Dec:		0%
														'88	332			19%
														'95	100			0%
Pinus edulis																		
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	1	-	-	-	-	-	1	-	-	-	66			1
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Total Plants/Acre (excluding Dead & Seedlings)														'82	0	Dec:		-
														'88	66			-
														'95	0			-

PERCENT BROWSE COMPOSITION--
Herd unit 13, Study no: 2

Species	Percent of Total '82	'88	'95
Artemisia nova	14	10	8
Artemisia tridentata vaseyana	83	62	65
Chrysothamnus nauseosus albicaulis	0	0	.25
Chrysothamnus viscidiflorus	0	0	0
Echinocactus spp.	0	0	1
Leptodactylon pungens	0	24	24
Opuntia spp.	3	3	1
Pinus edulis	0	.69	0